

CLAIMS

1. A hot-air circulation furnace comprising: a furnace body having a heat source and a rotating hearth; an annular heating-target mount having a heating-target mount shelf, which is provided at a position on the rotating hearth closer to an outer periphery of the rotating hearth along a peripheral wall of the furnace body, on which a heating-target is mounted so that the heating-target can be carried in or carried out in a radial direction, and through which a circulating flow can pass along a vertical direction; an axial-flow fan, which is provided in a vicinity of a roof of the furnace body, and which draws in hot gas in a direction from its outer periphery toward its central portion and blows out the hot gas toward the rotating hearth; and an annular partition, which separates an interior of the furnace into an outer peripheral region in which the heating-target mount is installed and an inner region inside the outer peripheral region, and which defines paths in which the circulating flow is reversed in a vicinity of the rotating hearth of the furnace body and in a vicinity of the roof of the furnace body.
2. The hot-air circulation furnace according to claim 1, wherein a plurality of zones are formed in the furnace body, and a heat source which is independently controllable is provided in correspondence with each zone.
3. The hot-air circulation furnace according to claim 2, wherein a flow straightening member having a surface parallel to the flowing direction of the circulating flow is provided in a portion of the path for the circulating flow.

4. The hot-air circulation furnace according to claim 3, wherein the flow straightening member is placed on one of the drawing-in side and the blowing-out side of the axial-flow fan.

5 5. The hot-air circulation furnace according to claim 3, wherein the flow straightening member is a partition provided in the inner region inside the annular partition.

10 6. The hot-air circulation furnace according to claim 1 or 2, wherein a partition is provided inside the annular partition for supplying the hot gas blown out from the axial-flow fan to the heating-target mount while increasing a velocity of part of the hot gas by reducing the opening of the space in the inner region at the outlet side relative to the opening of the space at the inlet side.

15

7. The hot-air circulation furnace according to claim 1, wherein the heating-target mount has the heating-target mount shelves in a plurality of stages.

20 8. The hot-air circulation furnace according to claim 7, wherein the heating-target mount is separated along a circumferential direction by partitions for defining along the circumferential direction in correspondence with spaces in each of which the heating-target is mounted to be processed at a time, and is provided to communicate together in a vertical direction through
25 the heating-target mount shelves.

9. The hot-air circulation furnace according to claim 7, wherein the furnace further comprises a charging opening and an extraction opening in the peripheral wall of the furnace body for enabling the heating-target to be charged and extracted with respect to the heating-target mount shelf in each stage on the heating-target mount.
10. The hot-air circulation furnace according to claim 9, wherein the charging opening and the extraction opening are independently opened and closed, and a space between the charging opening and the extraction opening is set so as to have at least one accommodation space for the heating-target of the heating-target mount.